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Research Paper: Quality of Life and Mental Health in Iranian Transgender Women

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ABSTRACT

Background: Mental health issues and quality of life are among the critical items of general health in individuals, especially transgender subjects. The present study aimed to assess the quality of life, depression, anxiety, and stress in transgender women and determine the factors contributing to them.

Methods: A cross-sectional study was performed on 127 Iranian transgender women using a convenience sampling method from August 2019 to April 2020. The Quality of Life (QOL) was determined using the World Health Organization (WHO) Questionnaire (WHOQOL-BREF). The DASS-21 questionnaire was employed to evaluate the subjects' anxiety, depression, and stress.

Results: In total, 48% of the individuals had a moderate QOL. The highest score was achieved in the physical health dimension and the lowest in social relationships. Depression, anxiety, and stress were severe and extremely severe in 22%, 20.4%, and 17.3% of the subjects, respectively. A significant relationship was observed between the overall perception of QOL and depression, anxiety, and stress ($P<0.001$).

A significant positive association was observed between the subscales of QOL and education and favorable economic status among transgender women. Furthermore, a significant negative correlation existed between the subscales of QOL with age and sexual violence. Regarding mental health, education had a significant relationship with reduced stress and anxiety, and good economic status had a significant relationship with reduced depression. Still, sexual violence was associated with increased stress in individuals.

Conclusion: The present study results emphasize that transgender women are at risk of mental health disorders, including depression, anxiety, and stress. These conditions are in close association with the quality of life in this population. Moreover, considering the high sexual violence in transgender women of the present study and its considerable effects on mental health disorders, there is a strong need to develop violence prevention services in the community and legal protections in this area. The culture of preventing violence against women in society should be emphasized, and education to families should be considered the first line of prevention.

Keywords:
Quality of life, Depression, Anxiety, Stress, Transgender, Women, Iran

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1. Introduction

Transgender subjects refer to individuals whose identity and gender are different from their birth-assigned gender [1]. These individuals may receive mistreatments in society and face discrimination in their life events. A significant proportion of this group includes victims of different types of childhood abuse. These issues can produce harmful outcomes in their lives and the Quality of Life (QOL) [2]. A meta-analysis represents a lower QoL and the associated mental health in transgender individuals compared with others. However, existing evidence suggests that gender reassignment surgery could improve the QoL for transgender individuals [3].

Depression is a severe mental disorder that disturbs individuals' health and QoL and burdens their families and society [4]. A US study found that 62% of transgender women displayed depression [5], which seems to be considerably higher than the US general population (16.6%) [6]. Research reveals approximately half of the young transgender individuals (43.8%) in China were at the risk of major depression, and more than one-third (37.4%) in this population was at the risk of anxiety disorders [7]. Previous studies suggested an association between depression and substance abuse, high-risk sexual behaviors, and suicide [8-10]. It is, therefore, necessary to determine the prevalence of depression and the contributing factors in the transgender population.

Transgender individuals are also at risk for various social stresses, such as stigma, discrimination, and bias events, which contribute to the odds that these subjects experience mental health problems [11]. Among transgender persons, the risk of developing anxiety disorders is three times that of the general population. There is evidence that the prevalence of anxiety disorders was much higher in transgender women (40.4%) and transgender men (47.5%) than in the general population [12].

Between 1987-2017, the number of Iranian transgender individuals referred to the relevant organizations was 3600, of which 1933 were transgender women, and 1667 were transgender men. Gender reassignment surgery has been approved as part of treatment in Iran since 1985 [13]; thus, transgender people still face numerous problems due to social stigma and insufficient family support, i.e., affected their general health and QoL.

Despite many efforts to achieve gender equality globally, women are still vulnerable and unable to enjoy their human rights [14]. Transgender women need special attention due to the numerous challenges and problems they experience in their daily lives [15].

Assessing the QoL and mental health status of transgender women would be essential to inform society of the problems and discriminations these individuals encounter. Besides, determining the factors affecting the QoL and mental health would facilitate determining appropriate clinical interventions. In preparing the current research, a more extensive study on the reproductive and sexual health needs of transgender women was conducted. Sexual behaviors of transgender women [16] and their discrimination, violence, and suicide [17] are discussed in separate articles. The present article assessed the QoL, depression, anxiety, stress, and the contributing factors in transgender women.

2. Materials and Methods

This cross-sectional study in Tehran and Shiraz was conducted after obtaining research ethics approval from Tehran University of Medical Sciences (ethic codes: IR.TUMS.FNM.REC.1398.052) on 24th June 2019.

Overall, 185 transgender people from "Tehran Transgender Support Center" and "Shiraz Forensic Medicine" were recruited by convenient sampling. It is noteworthy that our sample is selected from a completely heterogeneous population because most Iranian transgender individuals immigrate to these two cities, especially Tehran, due to living conditions and opportunities for gender reassignment. All study participants had a patient record at both places. Telephone calls were made to each subject, of which 45 did not respond, five did not want to participate, and eight did not meet the inclusion criteria. Eventually, 127 transgender females (112 from Tehran & 15 from Shiraz) participated in the study. Initially, the study objectives were explained to eligible transgender women, and then those who wished to participate in the study signed an informed consent form. All the questionnaires were completed at the centers and by two experts in the research subject. The inclusion criteria for transgender women were having a patient record at the two centers and undergoing hormonal or surgical treatment.

Research tools

This study used a demographic properties questionnaire, the WHOQOL-BREF questionnaire, and the DASS-21 questionnaire. The demographic questionnaire consisted of 9 questions about age, marital status, education, employment status, economic status, vaginoplasty, family support, physical violence experience, and sexual

violence in a transgender person. WHOQOL-BREF is a standard 26-item questionnaire that uses a 5-point Likert scale for each item and evaluates four dimensions, including physical health (7 questions with a score in the range of 7-35), psychological health (6 questions with a score in the range of 6-30), social relationship (3 questions with a score in the range of 3-15), and environment (8 questions with a score in the range of 8-40). After calculating the raw score across four dimensions, the score of each dimension is converted to a score in the 0 to 100 range to become comparable with the WHOQOL-100 questionnaire. Moreover, two questions are separately evaluated in this questionnaire; question 1 regarding the Overall perception of the Quality of Life (OQOL) (in the range of 1 to 5) and question 2 regarding the Overall perception of health (Ohealth) (in the range of 1 to 5). A higher score indicates better health status and QOL [18]. This questionnaire's validity and reliability have been evaluated for Iranian individuals. Cronbach's alpha for 4 dimensions of physical health, psychological health, social relationship, and environment has been reported as 0.81, 0.78, 0.82, and 0.80, respectively, which are satisfactory. The Interclass Correlation Coefficient (ICC) for each dimension of quality of life was >0.7 [19].

DASS-21 questionnaire has 21 questions regarding three dimensions: depression, anxiety, and stress. Each dimension has seven questions with a score of 0-21. Besides, the items are answered on a 4-point Likert-type scale, ranging from 0 to 3. The questionnaires are the summarized version of the original 42-question scale; thus, the severity of each subscale must be determined using the following classification and after doubling the score of each subscale.

Depression subscale: 0-9: normal, 10-13: mild, 14-20: moderate, 21-27: severe, and 28 and above: extremely severe. Anxiety subscale: 0-7: regular, 8-9: mild, 10-14: moderate, 15-19: severe, and 20 and above: extremely severe. Stress subscale: 0-14: normal, 15-18: mild, 19-25: moderate, 26-33: severe, and 34 and above: extremely severe. The validity and reliability of this tool have been performed for the Iranian population. The internal consistency coefficient of depression, anxiety, and stress was 0.93, 0.90, and 0.92, respectively, and the Interclass Correlation Coefficient (ICC) between the two times with a 3-week interval was 0.78, 0.87, and 0.80 [20].

Data analysis

The Shapiro-Wilk test checked the normality of continuous variables. Data with normal distribution were expressed as Mean±SD, while skewed variables were expressed as median and interquartile range. The categorical variable was expressed as no (%).

The relation between different domains of quality of life (physical health, psychological health, social relationship, & environment), anxiety, depression, and stress with socio-demographic variables (age, education, occupation, vaginoplasty, family support, & violence) was evaluated employing linear regression analysis; since the distribution of responses was skewed the outcome of interest were log-transformed, and the coefficients were interpreted as the exponential of the estimated one. Variable selection was conducted via best subset selection according to AIC criterion; thus, each regression equation was finally built via a specific set of variables. The goodness of fit of linear regression was checked through the normality of residuals, multicollinearity of variables, detecting outliers, and leverages.

Correlation between depression, anxiety, and stress with the Overall perception of the Quality of Life (OQOL) was evaluated by the Kruskal-Wallis H test. To overcome the sparsity of data, the outstanding participants were merged as good, and poor and very poor participants were merged into the poor group. All statistical analyses were performed with STATA. P<0.05 was considered statistically significant.

3. Results

The Mean±SD age of 127 participants was 27.6±7.3 years. Among the subjects, 62.2% were unemployed, 92.1% were single, 77.2% had a high school diploma, and most of them (56.7%) had poor economic status, 74% had not undergone vaginoplasty, 63% had low family support, 70.9% had experienced physical violence, and 63% had experienced sexual violence (Table 1).

The QoL and mental health of study participants are shown in Table 2. 48% of the subjects reported OQOL, and 51.2% reported health as the medium. The majority of subjects did not report any depression (55.9%), anxiety (63%), and stress (65.4%). Depression, anxiety, and stress were severe and extremely severe in 22%, 20.4%, and 17.3% of the subjects (Table 2).

A significant relationship was found between OQOL and depression, anxiety, and stress (P<0.001). Participants with better OQOl had experienced lower depression, anxiety, and stress (Table 3).

The relationship between the dimensions of QoL (physical health, psychological health, environment,

Table 1. The baseline characteristics of study participants

Characteristics		No. (%)
Age groups, y	<25	61(48)
	26-34	42(33.1)
	≥35	24(18.9)
Education	Primary/secondary	22(17.3)
	High school	98(77.2)
	Under/postgraduate	7(5.5)
Occupation	Unemployed	79(62.2)
	Public sector	8(6.3)
	Private sector	40(31.5)
Economic status	Poor	72(56.7)
	Good	53(43.3)
Marital Status	Single	117(92.1)
	Married	5(3.9)
	Divorced	4(3.1)
	In a relationship	1(0.8)
	Matital status	33(26)
Family support	High	12(9.4)
	Moderate	35(27.6)
	Low	80(63)
	Family support	90(70.9)
	Experience of physical violence	80(63)

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and Social relationship) and the demographic variables is reported in Table 4 through linear regression analysis. A significant positive association was observed between education with physical health (Beta=1.02, P<0.04) and environment (Beta=1.04, P<0.001), and economic status with physical health (Beta=1.16, P<0.01), psychological health (Beta=1.25, P<0.007), and environment (Beta=1.28, P<0.000). Each year, the increase in education was accompanied by a 2% increase in the physical health dimension and a 4% increase in the environment dimension, and the favorable economic situation was accompanied by a 16% increase in physical health, 25% in psychological health, and 28% in the environment. Contrary to expectations, physical violence was associated with a 53% improvement in the social relationship score (Table 4).

There was also a significant negative association between age and social relationship (Beta=0.98, P<0.04) and sexual violence with psychological health dimensions (Beta=0.82, P<0.02). Each one year increase in the person's age, the social relationship dimension score decreased by 2%, and the experience of sexual violence accompanied an 18% decrease in the psychological health dimension score (Table 4).

The association of depression, anxiety, and stress with demographic variables is presented in Table 5. Education was correlated with reduced stress (Beta=0.92, P<0.009) and anxiety (Beta=0.94, P<0.02), and an association were observed between favorable economic status and reduced depression (Beta=0.63, P<0.008). Per one level of increase in education, a 6% reduction in anxiety levels and an 8% reduction in stress levels were observed. A favorable economic situation was associated with a 37% reduction in depression. Contrary to expectations, in transgender individuals who reported moderate or low family support, stress was 50% (Beta=0.50, P<0.02) and 48% (Beta=0.52, P<0.01) less than those who reported high family support.

Table 2. The distribution of main outcomes of interest (n=127)

Main Outcomes		Mean±SD / No. (%)
	Continuous scale	
Quality of life	Physical health	53.9±16.3
	Psychological health	46±17.8
	Social relationship	39.2±22.9
	Environment	48.7±16.9
Overall perception of the Quality of Life (OQOL)		3±1
Overall perception of health (Ohealth)		3.1±0.9
Depression		12±12.2
Anxiety		8.3±10.6
Stress		13.5±11.7
	Categorical scale	
OQOL	Very poor	13(10.2)
	Poor	14(11)
	Neither poor nor good	61(48)
	Good	35(27.6)
	Very good	4(3.1)
Ohealth	Completely dissatisfied	5(3.9)
	Dissatisfied	21(16.5)
	Not satisfied nor dissatisfied	65(51.2)
	Satisfied	29(22.8)
	Very satisfied	7(5.5)
Depression	Normal	71(55.9)
	Mild	10(7.9)
	Moderate	18(14.2)
	Severe	8(6.3)
	Extremely severe	20(15.7)
Anxiety	Normal	80(63)
	Mild	5(3.9)
	Moderate	16(12.6)
	Severe	5 (3.9)
	Extremely severe	21(16.5)
Stress	Normal	83(65.4)
	Mild	7(5.5)
	Moderate	15(11.8)
	Severe	9(7.1)
Extremely severe		13 (10.2)

Table 3. Association between OQoL and depression, anxiety, and stress

Variables \ OQOL	Very Poor/Poor	Neither Poor nor Good	Good/ Very Good	P
Stress	20 (10, 34)*	10 (5, 19)	6 (2, 14)	<0.001**
Anxiety	14 (2, 28)	2 (0, 11)	2 (0, 6)	<0.001**
Depression	22 (8, 38)	8 (3, 16)	4 (0, 10)	<0.001**

*Median (IQR); **P<0.05

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Table 4. Association between domains of quality of life and some socio-demographic factors

Variables		Physical Health		Psychological Health		Social Relationship		Environment	
		Coefficient	P	Coefficient	P	Coefficient	P	Coefficient	P
Age						0.98	0.04*		
Economic	Poor								
	Good	1.16	0.01*	1,25	0.007*	1.23	0.15	1.28	0.0001*
Education		1.02	0.04*	1.02	0.09			1.04	0.001*
Physical violence	No								
	Yes	0.88	0.06			1.53	0.006*	0.88	0.10
Sexual violence	No								
	Yes			0.82	0.02*				
Vaginoplasty	No								
	Yes					1.33	0.08		
Family support	High								
	Moderate					0.86	0.56		
	Low					0.63	0.07		

*P<0.05

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Table 5. Association between depression, anxiety, and stress with some socio-demographic variables

Variables		Depression		Anxiety		Stress	
		Coefficient	P	Coefficient	P	Coefficient	P
Economic status	poor						
	Good	0.63	0.008*	0.81	0.14		
Education (years)		0.95	0.08	0.94	0.02*	0.92	0.009*
Sexual Violence	No						
	Yes					1.49	0.01*
Family support	High						
	Moderate					0.50	0.02*
	Low					0.52	0.01*

*P<0.05

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The experience of sexual violence was associated with a 49% increase in individual stress (P<0.01) (Table 5).

4. Discussion

This study assessed the QoL, depression, anxiety, stress, and contributing factors in transgender women.

Our results indicated that 48% of transgender individuals reported OQOL as moderate when considering the QoL. This finding could be interpreted with a significant positive relationship between education and economic status with quality of life subscales. Most study subjects lacked an appropriate education, economic status, and profession. It seems that these factors could have an inverse effect on physical health, psychological health, environment, and ultimately, OQoL. Other studies revealed a significant relationship between the QoL of transgender women and their education, profession, income, and psychological stability [21], income and QOL [22], and income and education with QOL [23]. Higher education is perceived as an enabling factor for women, leading to an appropriate profession, higher income, and improved QOL.

Considering the QOL dimensions, the highest mean belonged to physical health (53.9%). The higher score in physical health could be explained by the age average of 27 subjects and the fact that the majority (74%) had not undergone gender reassignment surgery. In other studies, the highest QOL belonged to the transgender individual's physical function [24], who sometimes had a higher score than the general population [25, 26]. However, the highest QOL in transgender individuals was reported in the environment in two studies [2, 28], which could be attributed to the higher employment and income of the transgender subjects in that study than ours. In the present study, the lowest quality of life belonged to social relationships (39.2), needing attention. The majority of the transgender people in this study (63%) had low family support. The lack of family support and social stigma could lead to social deprivation and the limited relationship of these individuals with others. Low social relationship scores are observed in the two other studies [2, 27]. The QoL of the participants in the social relationship dimension in this study decreased with age, i.e., not far from expectation considering the higher connection of younger transgender people with social media.

The results of Table 3 indicated that the OQoL of transgender people has a significant relationship with their depression, anxiety, and stress, which is consistent with Gorin's study [28]. Of course, paying attention to the mental health of transgender people could significantly improve their QoL.

The mean score of depression in the transgender women shows mild depression; however, 22% had severe and extremely severe depression, which deserves attention. Considering the considerable effects of economic status in alleviating depression (37%), it is crucial to pay attention to these people's living and financial needs, consistent with other studies [29, 30].

The mean anxiety score was mild in transgender women; however, 20% had severe and extremely severe anxiety. Moreover, improved education was associated with decreased anxiety in them. Improved education will lead to better social status for transgender individuals and decrease their worries by creating self-confidence. The results of other studies highlighted the positive effects of education on mental health [31, 32].

In the stress dimension, although the mean score of stress was normal in transgender women, 17.3% of them had severe and extremely severe stress. Education contributes to stress; however, sexual violence was associated with a considerable increase in stress scores (49%). The high rate of sexual violence in this study (63%) and its relationship with stress show that these groups are exceptionally mentally vulnerable and should be well attended to counseling, support groups, and health promotion programs. The results of two other studies also confirm the association between sexual violence and mental health disorders in transgender individuals [33, 34].

5. Conclusion

The present study results emphasize that transgender women are at risk of mental health disorders, including depression, anxiety, and stress. These disorders are in close association with the quality of life in these people. The analysis of demographic variables indicated that education, especially economic status has a considerable effect on mental health and, consequently, QoL in transgender individuals. Therefore, paying attention to enabling transgender women in education and creating appropriate job opportunities could indirectly lead to a higher QoL and mental health by improving their economic status. Moreover, considering the high sexual violence in transgender women of the present study and its considerable effects on mental health disorders, there is a strong need to develop violence prevention services in the community and legal protections in this area. The culture of preventing violence against women in society

should be emphasized, and education to families should be considered the first line of prevention.

A limitation of this study was the lack of a control group from the general population to compare the outcomes with those of the transgender population. Nevertheless, the present study is of the first studies in Iran that have assessed the quality of life, depression, anxiety, stress, the contributing factors, and the relationship of these factors which each other and with the demographic variables, in such considerable size.

Ethical Considerations

Compliance with ethical guidelines

Ethic approval was obtained from Tehran University of Medical Sciences with Ethics number of IR.TUMS.FNM.REC.1398.052 on 24th June 2019. Written consent was obtained from all participants. All procedures performed in studies involving human participants were per the ethical standards of the Research Ethics Committee.

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Author's contributions

Conception and design: All authors; Acquisition of data: Azar Nematollahi; Analysis and interpretation of data: Safoora Gharibzadeh; Farnaz Farnam & Azar Nematollahi; Writing - original draft: Azar Nematollahi & Farnaz Farnam; Revising it for intellectual content and final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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